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ABSTRACT

A collection of 90 contemporary mathematics story problems are presented for use by elementary teachers. The problems enable students to exercise the steps of problem solving involving operational skills. Instructions given to students list five directions for finding solutions. The answers to all 90 problems are included. This document is part of a collection of materials from the Iowa Area Education Agency 7 Teacher Center project. (EM)

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CONTEMPORARY STORY PROBLEMS

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Cedar Falls, Iowa

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Teacher Center Director - Diane Gibson, Ed. D.

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NEEDS TO DO TO SOLVE

A. Read the problem carefully.

B. Think of what it asks. Use the word clues in the question.

C. Decide which numbers to use.

D. Decide on the operations and steps, if more than one. Do you "put numbers together" or take them apart?

E. When you find your answer or answers, think: is this reasonable and sensible?

If you can "round" numbers, estimate answers and compare with your answer.

Watch the dollar signs and decimal points!

Good Luck!

Contemporary Story Problems Designed for Exercising Steps

of Problem Solving Involving Operational Skills

1. "Walking the beans" or chopping weeds paid $3.00 an hour. For the hours of 8 until 12 and 1 until 3, how much would be earned a day? How much for a five day week? How much for two weeks?

2. Roland beanwalked at $3.00 an hour for a 5 day week as follows: Monday 6 hr.; Tuesday 5 hr.; Wednesday 3 hr.; Thursday 5 hr.; Friday 6 hr. How much did he make each day? For the week? How many hours did he average each day for that week? What did he average in pay per day?

3. In 1969 a gallon of gas cost around $.30. In 1980 midsummer a gallon of gas cost $1.20 in general. How much more does a gallon cost in 1980? How many times as much?

4. In 1969 nightcrawlers for fishing sold for 25¢ a dozen. In 1979 they sold for $1.10. How much more do they cost in 1979? What did 4 dozen cost at the 1969 price? What do 4 dozen cost at the 1979 price? Would this be a profitable hobby? Justify your answer. Consider what is involved: transportation, availability, storage, market.

5. "Holiday of Ice" best seat in 1969 cost $4.50. In 1969 could you have had 4 seats for a twenty dollar bill? Explain why or why not. In 1979 that best seat costs $7.00. How much more is the 1979 cost? What would 4 seats at the 1979 price cost? Would a twenty dollar bill pay for the 4 seat 1979 price? Explain why or why not.

6. In 1979 a canary cost $60.00; a parakeet $9.97. In rounding off prices, you could say the canary cost_____times as much as the parakeet.

7. In 1969 a parakeet cost $1.88; a canary cost $3.47. What would be the total cost? Would ten dollars buy both? Explain.

8. In 1979 a parakeet and canary cost how much? How much more than a fifty dollar bill would be needed to pay for them?

9. In 1969 a sled cost $20.00; a bowling ball $29.95, a Monopoly game $6.49, a table tennis set $15.00. Total of this fun outfit is what? If a garage sale advertised these at 1969 prices, would you be quite interested if you were looking for them?

Contemporary Story Problems, cont.

10. In 1969 a tent for a family of 4-6 cost $90.00. In 1979, it had increased to $200. What was the difference? Had the price almost doubled, doubled, or more than doubled? Justify your reasoning. At the 1979 price, what would be the average cost for 4 people?

11. If a dozen golf balls in 1979 cost $13.00, does each golf ball cost less, as much as, or more than one dollar? Justify your point.

12. In 1979 a pool table costs $400.00, each cue $20.00, rack of pool balls $55.00, chalk $.25. What would a pool table, 5 cues, a rack of pool balls, and chalk cost? In a family of five if the cost is shared, what is each one's share?

13. A mini bike in 1979 costs $450.00. If 3 of a family share it, what is the cost per member? Is this almost, equal to, or more than a hundred dollar bill?

14. If 5 members in a family gather 3 ricks of firewood for the fireplace, and it is valued at $40.00 a rick, how much did each member contribute?

15. If a lawn croquet set costs $24.95 and you estimated the share of 5 members of a family, each member would have $_____ of the cost.

16. If a tennis racquet costs $34.00 and 4 family members share it, what is the share of each?

17. An AKC Chihuahua costs $150.00; $20.00 for transportation, $23.00 for Doggie Bunk; $7.00 for food and supplements; $3.50 for vitamin pills; $3.00 for toys; $4.98 for harness; $.69 for leash; and $4.98 for sweater, how much did Georgie Girl XV cost? If 3 people shared the cost, what was each one's part? (approximately)

18. The following information is according to U.S. Immigration and Naturalization Service and U.S. News and World Report, July 9, 1979:

    In 1977, 70,010 people emigrated to the United States from Europe; 57,759 from Asia; 207,611 from Latin America; 12,688 from Canada, and 10,155 from Africa, and 4,092 from Oceanica and others. This totaled how much?

19. According to the same source, 4,964,331 registered aliens live in the U.S. The top 4 states regarding this are: California, 1,260,841; New York, 800,719; Texas, 377,782; Florida 369,379. Do these top 4 account for at least half? Explain.

Contemporary Story Problems, cont.

20. According to the same source, after California is taken out of the 4,964,331 registered aliens, what is left for the other 49 states?

21. According to the same source, 462,315 persons settled in the U.S. from abroad. The main birthplaces of these people were: Cuba, 69,708; Mexico, 44,079; Philippines, 39,111; Korea, 30,917. How many come from these 4 countries of all the world? Is this not quite half, half, or more than half?

22. C Mart had a sale of beach towels, $3.88 each. How much would it be for Cissy, Bobby, and Ruby to get them? Would a ten dollar bill take care of it? Explain.

23. C Mart had paper plates on a special - 2 packages for $1.00. There were 80 count to a package. How many for one dollar? For three dollars? At a "block" party would $2.00 take care of 200 friends and relatives?

24. According to U.S.Dept. of Labor, Commerce, Energy; U.S.News and World Report, July 16, 1979, in 1954 1 lb. of hamburger cost $.39; in 1979, $1.58. How much more did 1 lb. of hamburger cost in 1979?

25. Same source as above - sugar in 1954 cost $.51 for 5 lb. in 1979, $1.27 for 5 lb. How much more did 5 lb. cost in 1979? What would this do to the price of candy, cakes, cookies?

26. Same source as above - milk, ½ gal. (one half) cost $.41 in 1954; in 1979, $.96. What is the difference? Did the price double? With the rise in sugar and milk prices, what did this do to the price of ice cream and dairy products?

27. Accroding to U.S.News and World Report Aug. 20, 1979, there were 16,000,000 Americans who enjoyed stamp collecting. Artists are paid $1,500 for each commemorative stamp design. Norman Rockwell designed two of these. How much did he make?

28. Same source as above - Commemorative stamps sold in 1978 for 87.7 million. Of this,86 million was clear profit for U.S. Postal Service. How many million were expenses? Is this a small, medium or large part?

29. Same source as above - there are 4,000 suggestions of ideas for these special stamps received each year. About 30 new commemorative stamps are printed each year. How many ideas are turned down? Would you have a small, medium, or large chance of winning with your idea?

Contemporary Story Problems, cont.

30. The first commemorative series in 1893 honored Christopher Columbus and sold for $4.00. It is now worth over $1,550. Is this 100,200, 300, 400, or 500 times as much? Justify.

31. Stamps now cost 15¢ each. How many do 10 cost? 20? 30? If you bought 20 stamps, how much change would you get from $5.00? If you bought 30, how much change?

32. A sleeping bag for campers and fishermen shown in Pete's Catalogue of 1979 is priced at $23.49, or 2 for $39.98. To buy 2 saves what money, if any?

33. "Stuff" bags to store sleeping bags cost $2.99 each. How much will stuff bags for Allen, John, Mildred, and Mary cost? Would a twenty dollar bill pay for them? Explain.

34. One backpack costs $44.49. Backpacks for Jean, June, Daniel and Robert would cost how much? Would a hundred dollar bill and a fifty dollar bill buy these backpacks? Justify.

35. For camping, a nylon sport tent costs $59.99; a camp stove, $33.99; a lantern, $16.99. What would this outfit cost? If 2 families of 5 people each shared the cost, what would be each one's part? (Estimate from the total.)

36. A Paytronic pocket prospector,used to search small areas, is $14.99, compared to a Jetso Bronco treasure trove detector costing $32.99. How much more is the Jetso Bronco treasure detector?

37. The lowest priced detector with prospector was $104.00 in the Mid Catalogue, and the most sensitive detector, Bearco, sells for $219.99. How much more was the Bearco detector?

38. Derby Comet vinyl supper rink shoe skates cost $29.95. What would these skates cost for Fanny, Agnes, Francis, and Gertrude?

39. Sclar rink skates with leather uppers cost $42.95. The Derby Comet vinyl upper cost $29.95. How much more are the leather pair? If you bought the leather pair with a fifty dollar bill, what would be left?

40. Jamie's Mysatflex skateboard cost $17.99; Jesse's Palm Tree skateboard cost $13.99; Marion's cost $11.99; and Chris' cost $7.99. How much had the boys paid for their skateboards?

41. Reba, Rena, and Lucy chose a croquet set for $10.99; a volleyball and badminton set for $11.99; a horseshoe set for $12.99, and a tetherball set for $11.99 for a family gift given by parents to the family. The value was? If Dad and Mom have been saving a fifty dollar bill for this, would there be any change? If so, how much?

42. Lifting, light 10 speed racers, My Fliers bikes cost $88.99 each. What would 2 bikes, 2 chrome light sets at $9.99 each, 2 speedometers and odometers (in together) at $9.99 each; 2 AM detachable bike radios at $9.99 each, cost? (Estimate) If a daughter and son shared the expenses, how much would each one's share be?

43. A hot air corn popper in Willie's Catalogue Store costs $24.99. A Flip-Flap top popper costs $11.99. How much more is the hot air popper?

44. An antique stove top corn popper is $6.99, and a popcorn Olde-Fashion Wagon popper is $19.99. How much less is the antique corn popper?

45. Herman's Deluxe coin collector kit, starter set, costs $19.99; 200th birthday coin set $9.49; lighted coin viewer, $12.99, so what was the cost of his hobby so far?

46. At Springer's, a Hilarious family size tent, regularly $149.99, was priced $99.88. This meant a savings of how much? If Mom, Dad, Willie, Adam and Sarah all enjoyed it, what would be the share in cost for each one? (Estimate)

47. A bean bag wetlook vinyl chair costs $18.88 at Archway's, while a cartoon character bean bag chair costs $26.95 and an animal bean bag chair costs $29.95. If Susie wants an animal chair, Myrtie wants a cartoon chair, and Ernie wants a wetlook chair, what do they cost all together? What is left from $100.00?

48. What would this camping outfit cost from Alice, Amy and Andy's Shop - a tent for $159.88, a Pak-a-Potti for $49.88, a two-burner stove for $24.88, a mantle lantern for $13.88? Would three one hundred dollar bills take care of these costs?

49. On sale, thongs for the family were $1.88 a pair. For Katie, Ag, Howie, Elmer, Mom and Dad, how much would the cost be in all? Would a ten dollar bill handle it? Explain.

50. An 8-track cassette stereo, The Group, was on sale for $199.95 at Willis' - regularly $269.95. How much was it reduced? Would $200 buy The Group at the special price?

51. Earlena wanted a Ranasonic portable cassette recorder costing $29.87, a JE portable radio at $11.77, a Cal's calculator tiny size at $14.94, a Sodak Rocket Pocket camera for $25.94. How much did Earlena need, not counting tax? Would a twenty and a fifty dollar bill pay for all of these things? Explain.

52. Looie wants a wagon. A star 90 steel wagon costs $17.77, while a shooting star 18 steel wagon costs $27.97. If Looie has two ten dollar bills to spend, which wagon could he buy? How much money would he have left?

53. At Lutie's Store, an American ladies or men's tourist 3 speed bike bosts $84.94. An American men's or ladies 10 speed with derailleur costs $109.90. How much less does the three speed bike cost in either men's or ladies? What would be left from a one hundred and a twenty dollar bill to pay for the 10 speed?

54. A Mickey Mouse watch costs $17.90 at Swanson's and a Minnie Mouse watch costs $18.90 and a Holly Hobby costs $17.90. How much would grandparents pay for Omer and Grover to have Mickey Mouse watches? For Betty, Katie, Liz and Eliza to have Minnie Mouse watches? For Louise to have a Holly Hobby watch?

55. A cycle railroad watch costs $13.90 and a star wars watch costs $17.90. How much would a railroad watch for Charlie and Andy, and a star wars watch for Lucia and Melinda cost? What would remain from a hundred dollar bill to pay for them all?

56. For the twins' birthdays, Terry and Tony got a jumbo gumball machine costing $15.97, 2 packages of gumballs at $1.97 each, a large nut machine costing $9.97, 2 jars of nuts at $1.44 each, a Butterball corn popper for $13.97, 2 lbs. of popcorn for 59¢ a package and corn oil for 79¢ from parents and grandparents, aunts and uncles. What was the value for their family room in the total cost?

57. A box of Fancee pastries costs $6.88. It contains 32 little cakes or petit fours. How much does each cake or petit four cost? To serve 20 people, what would be the price?

58. A musical bear costs $5.87 at Hawley's and a musical lamb costs $6.67. If you bought both for a collection, how much would you receive back from a twenty dollar bill birthday gift?

59. At Emily's Store, a game of Monopoly costs $5.97, Aggravation $4.74, Sorry $5.96, Life $6.97. How much would all the games cost? If Harold, Martin, Lorna, and Alicia went together to equalize the cost, what would each one's share to pay be?

60. At Emily's store, Star Trek game costs $5.77, Hungry Hippy $8.47, Jaws $6.47. Could you buy all three of these for two ten dollar bills? Explain.

61. What was the average cost per game in the above situation? Did any of the 3 games actually cost that amount?

62. At the Caravan Store, the game Pay Day costs $6.97, Chinese Checkers costs $6.47. How much is left from a twenty dollar bill after buying both of them?

63. A scenic wall clock of cat tails, water and sunrise costs $29.99, a woodland scene clock costs $24.99. How much would you save by buying the woodland scene? Not counting tax, would a twenty dollar bill and a five dollar bill pay for which one?

64. For early Christmas shopping, Leslie bought a wood-frame cork bulletin board for $5.49, a bike speed-odometer for $9.99, a weathervane for $14.99, a brass door knocker for $19.99. She had saved a fifty dollar bill and a five dollar bill from summer work. Did this pay for the family gifts? Was it enough? Not enough? Some left over? Explain fully. What was the gift bill all together?

65. A ballpark hot dog maker costs $14.99 - another kind of fast dog maker costs $17.99. How much is left from a twenty-five dollar check if you buy the ball park hot dog maker?

66. Molly, Esther, Tom and Kris want to share expenses on anniversary gifts for their parents. They decided on a Fivesat Digital Numbers on the Ceiling clock radio costing $28.94, Four Seasons Weather Station costing $18.94, and Black Forest Weather House costing $15.96. What would be each one's part to pay for all of these gifts?

67. A table globe costs $12.57, a floor stand globe costs $19.60. How much more is the floor stand globe?

68. The costs of gifts of a musical jewel chest at $21.47, a magazine rack at $10.98, and Beacon blanket at $9.68 for their parents for Christmas were shared by Ray, Elsie and Emma. What was the amount each paid?

69. Westminister chime clock could be bought for $159.94, a Black Forest cuckoo clock could be purchased for $79.84. How much more did the chime clock cost?

70. An official horseshoe game is regularly $12.96 in price, but on sale it is $9.98. How much will a frisbee regularly $.47 in price but on sale for $2.97 and a horseshoe game both on sale cost? Would a ten dollar bill and a five dollar bill pay for them? Explain in figures.

71. If two $4.50 frisbees on sale for $2.98 each were bought for a family of four (the dog doesn't have to pay in), what would each player's share be?

72. A party time full size slumber bag costs $19.99 and pillow costs $2.99. Two bags can zip together for a double. How much would the two bags that can zip together and two pillows cost?

73. A folding stadium seat costs $7.99 and a vinyl carry-all costs $7.88. The NFL team emblems cost $1.50. How much would a stadium seat with an emblem to apply and a carry-all with an emblem to apply cost all together?

74. A frozen turkey costs $14.87, dressing $3.25, platter with the turkey design costs $15.97. How much does the complete set for Thanksgiving cost? Of these, which expense would not have to be met for the next years?

75. In the Sure Stamp catalogue, a tennis racquet and cover require 8 books. If Ruthie has 5 books, how many are lacking? If each book has a cash value of $3.25, how much would have to be paid beside the books she has to get the tennis raquet?

76. In the Red, White and Blue stamp catalogue, an oak baseball bat was 4 books and Batto softball 2½ books and fielder's glove 7½ books. How many books does this require for the outfit?

77. In the Sure Stamp catalogue a basketball takes 4½ books and a football takes 7½ books. How much more does the football take? How many books are needed to get them both?

78. A Moonlight portable gas grill takes 67 books, an umbrella table needs 28 books, and an umbrella 23 books. How many in all does the patio outfit take? If the Petrich's and the Miletich's went together in sharing, what would each family's share be?

79. A fitted picnic basket takes 8 stamp books and a deluxe outing club kit takes 10 books, an insulated picnic bag takes 3 books. The Daniel family has 25 books. How many are they short or long? Do they have enough? Not enough? More than enough?

80. The game of Cornering Markets needs 5 stamp books. Really Sorry game takes 4 books, and Woodburner's Delight 3 books. For a family room shelf, the Richman family have 20 books. How many can they use of these? Are any needed or left over? Explain fully.

81. A fiery fireside set for fireplace takes 10 stamp books and a fireplace screen takes 38 books, a woodrack 6 books, bellows 5 books, paper log roller 5 books. For these needs, what does the Herman family have to have? If they have saved 50 books, what do they need?

82. An artificial Scotch pine Christmas tree costs $17.99, a musical nativity set $23.99, two sets of bubble lights at $8.79 a set, two sets of st ained glass ornaments at $3.99 each, a string of candle lights at $6.49, are needed for the Brown's family tree. Would fifty dollars pay for these? What is the difference? Could anything be made by the family? Could anything be cut back and left out? Could these things last for years?

83. A burro pinata costs $5.99, a pinata candy mix $.99 a bag. Four bags are needed. Would a ten dollar bill pay for the pinata and four bags of candy? What is the difference?

84. A boy and girl under umbrella music box costs $6.99, a music box of angel trio that rotates costs $12.99. How much less is the boy and girl under umbrella? If Lucille, Genevieve and Margie go together to pay for the boy-girl music box, what is each one's share? If they would buy the angel rotating music box, what would be each one's part?

85. Some Christmas gifts for Mom were a love-dove night light costing $8.99, a manicure set for $6.00, a full round brush at $4.99. What was the average price per gift?

86. A genuine lambskin suede vest for Dad for Christmas cost $80. If four people share the cost, what was each one's part?

87. A NFL pencil set costs $2.19, a NFL Warm Seater costs $19.99, a set of NFL mugs costs $13.88, NFL set of pennants $4.99. Would a fifty dollar bill buy all of these? What is the difference? Would you need more to get them all?

88. Gasoline costs $1.20 a gallon. A tank holds 25 gallons of gas in a certain car. What does a full tank cost? What is the average cost to run the car on a 7-day week basis?

89. A Come and Go camper goes 10 miles on a gallon of gas. Each gallon costs $1.20. Each mile costs how much? A five-hundred mile trip costs how much?

90. Speed is 55 miles per hour. You have 550 miles to go. How many hours does it take? Would it be wise to try it in one day? Explain.

Contemporary Story Problem Answer Sheet

1. a. $18.00 a day
   b. $90.00 for 5-day week
   c. $180.00 for two weeks

2. a. Monday - $18.00, Tuesday - $15.00, Wednesday - $9.00, Thursday - $15.00, Friday - $18.00
   b. $75.00 for week
   c. 5 hours average
   d. $15.00 per day

3. a. .90¢
   b. 4 times

4. a. .85¢
   b. $1.00
   c. $4.40
   c. Yes

5. a. Yes
   b. $8.00
   c. $28.00
   d. No

6. 6 times

7. a. $5.35
   b. Yes

8. a. $69.97
   b. $19.97

9. a. $71.44
   b. Student opinion

10. a. $110.00
    b. more than doubled
    c. $50.00

11. More than

12. a. $555.25
    b. $111.05

13. a. $150.00
    b. more than

14. $24.00

15. $5.00 each

Answer Key, cont.

16. $8.50

17. a. $217.15
    b. $72.38

18. 362,315

19. Yes

20. 3,703.490

21. a. 183,815
    b. not quite half

22. a. $11.64
    b. No

23. a. 160 plates
    b. 480 plates
    c. Yes

24. $1.19 more

25. a. .76¢ more
    b. Raise the prices

26. a. .55¢
    b. Yes
    c. Raised price of ice cream and dairy products

27. $3,000.00

28. a. 1.7 million
    b. Small

29. a. 3,970
    b. Small chance

30. Not quite 400 times, as $1,550 is short of $1,600

31. a. $1.50
    b. $3.00
    c. $4.50
    d. $2.00
    e. .50¢

32. $7.00 saved

33. a. $11.96
    b. Yes

34. a. $177.96
    b. No

Answer Key, cont.

35. a. $110.97
    b. $11.10 each

36. $18.00 more

37. $115.99 more

38. $119.80

39. a. $13.00
    b. $7.05

40. $51.96

41. a. $47.96
    b. $2.04

42. a. $237.92
    b. $120.00 each

43. $13.00 more

44. $13.00 less

45. $42.47

46. a. $50.11
    b. $24.97

47. a. $75.78
    b. $24.22

48. a. $248.52
    b. $51.46

49. a. $11.28
    b. $1.28 more needed

50. a. $70.00
    b. Yes, not counting tax

51. a. $82.52
    b. No

52. a. The star 90 steel wagon
    b. $2.23

53. a. $24.96
    b. $10.10

Answer Key, cont.

54. a. $35.80
    b. $75.60
    c. $17.90

55. a. $27.80
    b. $35.80
    c. $36.40

56. $48.11

57. a. .22¢ each
    b. $4.40

58. $7.46

59. a. $23.64
    b. $5.91

60. No. You would be short .71¢

61. a. $6.90 1/3 average
    b. No

62. $6.56

63. a. $5.00
    b. Woodland clock could be bought for $25.00

64. a. Yes, more than enough
    b. $50.46 total gift bill

65. $10.01 left

66. $15.96

67. $7.03 more

68. $14.06 each

69. $80.10 more

70. a. $12.95
    b. Yes, $2.05 left over

71. $1.49 each

72. $45.96

73. $18.87

74. a. $34.09
    b. The platter would last through the years.

Answer Key, cont.

75. a. 3
    b. $9.75

76. 14 books in all

77. a. 3 more
    b. 12 for both

78. a. 118
    b. 59

79. a. 4
    b. More than enough

80. a. 12
    b. 8 left over

81. a. 64 books
    b. 14 more needed

82. a. No
    b. $24.03
    c. Yes
    d. 1 set of bubble lights left out to save $8.79
    e. Yes

83. a. Yes
    b. .05¢ left

84. a. $6.00 less
    b. $2.33
    c. $4.33

85. $6.66

86. $20.00 each

87. a. Yes
    b. $8.95 difference
    c. No

88. a. $30.00
    b. $4.28 per day

89. a. .12¢ a mile
    b. $60.00 for 500 mile trip

90. a. 10 hours
    b. No, one driver driving 10 hours in one day is too tiring.